



ISSD

NEWSLETTER

Volume I Number 3

May 1988

Note From the Editor:

This is the third edition of our newsletter. It differs slightly from the two previous editions in that it contains more copy relating to society business and less material about frogs persay. The "featured frog" of this edition is actually a group of frogs, the "quinquevittatus complex". While you probably will agree that we gave adequate coverage to *Dendrobates auratus* in the last newsletter, I am sure you will note that the subject of the quinquevittatus complex is not exactly exhausted herein. In point of fact, we have barely scratched the surface. This is due, in part, to the fact that these frogs are not well represented in American collections. At the present time the majority of the memberships are held by Americans (this may change as ISSD becomes better known in Europe where there are larger numbers of collectors) and as a result the pool of authors who can write authoritatively on this subject is rather limited. Hopefully in the future we can deal with the quinquevittatus complex again, in a more comprehensive manner. Toward this end, I would like to continue to receive papers concerning these species.

I am sure that many of you have been anxiously awaiting the publication of the membership roster. At the time of this printing we have eighty-four members; a respectable start! Please check over your name and address on the roster and let me know if there are any errors. The list will be updated periodically in subsequent editions. We hope that this information will be useful to all of you for facilitation of correspondence and for making arrangements for breeding loans, trades, and sale of captive bred frogs. This list will no doubt rapidly circulate in herpetological circles; it is hoped that priority will be afforded to ISSD members when it comes to allocation of the limited supplies of captive bred frogs.

You will find in this newsletter, a printing of the proposed Constitution and Bylaws. I would like to

have this document ratified at the first annual ISSD meeting to be held this coming June at the 12th International Symposium on Husbandry and Captive Propagation of Reptiles and Amphibians in New Jersey. I anticipate that many of the members will not be present at this meeting; therefor we will attempt to ratify this document via a mail ballot system. Enclosed with this newsletter is a ballot on which you can either vote for or against adoption of the Constitution and Bylaws. If you feel that this Constitution and these Bylaws will serve us well as it pertains to the government of the society, register your approval with a yes vote. If you think that it needs to be changed before you can lend it your support, register a no vote. Your comments are appreciated and space for them is provided on the ballot. Ratification or rejection of this document will take place at the pleasure of a majority of those members returning the ballot, plus those who actually attend the meeting. The implication of the preceding statement is that failure to return the ballot on time does not constitute a no vote. Please make your vote as soon as possible after you receive the newsletter so that we can have an answer by the time of the meeting (June 15th-18th, 1988). Ballots should be returned to Ed Tunstall via air mail. Once we have a governing framework within which to work, we can get on to some of the other business of the society (such as election of officers) which here to for has not been possible.

NOW is the time for those of you who are interested in contributing papers for the next newsletter to get them in to me! The sooner I receive them, the better the quality of the newsletter will be. The featured frog of the July newsletter will be *D. azureus*. Those who wish to include photographs in their papers should be especially speedy in getting their work to me. Financial restrictions prevent the publication of color photographs at this time; however, good quality black and white prints can be used to create "half-tones" which reproduce nicely with the printing techniques we are using.

"Fantastic" Tea for Tadpoles

Bruce Ian Hilar
Biologist
Steinhart Aquarium
California Academy of Sciences

In the fall of 1987, a German friend who breeds *Dendrobates* presented me with five small *Dendrobates fantasticus* tadpoles. They were very young animals, probably less than a week old and a little over 1/4 inch (6mm) in length. Knowing how well the Germans have done with this species, and the *Dendrobates* family in general, I decided to raise these immigrants as if they were in their homeland. The basic German principle of tadpole rearing is to create a tannic acid pool, with many plants and animals decaying or thriving with the tadpoles. The theory behind this technique is that the pool simulates the "natural" tadpole rearing micro-environment. The decaying plant and animal material supports a population of microorganisms that the tadpoles feed upon. The tannic acid helps prevent fungal and bacterial blooms and is the key to preventing bacterial harm to the tadpoles as well as establishing a balanced biological microcosm.

The tadpoles were raised in individual plastic boxes 6" x 4" x 6" (15cm x 10cm x 15cm). Aged aquarium water was added to a level of about 1 1/2" to 2" (3.8cm to 5cm). Plants that were used included: *Fontinalis* sp., *Riccia fluitans*, duck weed (*Azolla caroliniana*), and water sprite (*Ceratopteris thalictroides*). Animals, other than the tadpoles, that were introduced to the "pools" were: flat worms (*Planaria* sp.), white worms (*Enchytrae* sp.), daphnia, and most importantly, snails (*Planorbis*).

I used two different methods simultaneously to tannic the water, both borrowed from tropical fish keeping experience. The first method utilizes a fibrous German peat moss. This material will sink after soaking for about a week. Approximately two one-cubic-inch pieces were used per container. The peat moss not only produces the desired tannic acid, it is also an active adsorber of

many organic compounds. The second method utilizes the "cone" of the Red Alder (*Alnus rubra*). The cone is the shed remains of the reproductive structures of the tree; it resembles a small pine cone. They are plentiful year around on the ground beneath the plant. I added twenty to thirty cones to ten gallons (38 liters) of water and allowed them to soak for about a week. The water assumed a tea like coloration. Water from this process made up approximately 1/3 of the water used in the pools.

Next, the tadpoles were placed, along with other amphibians, in a small heated room. The temperature was maintained at about 74° F (23° C). They were fed either 1/8 of a Tetramin tablet or a piece of liver roughly half the size of the tadpole, every other day. The tadpoles also fed on the white worms and possibly the daphnia that had been added to vary the fauna. Once a week the tadpoles were transferred into a clean container with a fresh mix of "tea" and aged aquarium water. Also, along with the tadpoles, all the other plants and animals were transferred. The white worms and daphnia were periodically replenished to offset losses due to predation.

Metamorphosis took place in 3 to 3 1/2 months. The neonates were raised in plastic aquariums 10" x 6" x 8" (25cm x 15cm x 20cm) with screen tops in the same room that they had been in as tadpoles. The rearing tanks had been set up a month prior to the introduction of the neonates. A 1" (2.5cm) layer of a mixture of potting soil and leaf litter was used as the substrate and also served as a culture medium for springtails (*Collembola*). Additional trays of springtails were also established in advance. The springtails, wing-less fruit flies, and week old crickets comprised the whole diet of the baby frogs. Seven months after metamorphosis, the frogs are nearly full adult size.

The method and materials used by me were those most convenient in my situation; variations of plant and animal species should pose no problems. Certain criteria such as food types, surface area, and water depth are more important. Oak bark or Tetra Spawning Aid could substitute for my tannic acid "tea". Although this biotic method seems as though it might be difficult to duplicate, it is actually much easier and less time consuming than the usual American sterile jar method.

The "Breeder's Forum"

In Volume 1 Number 2 there were several questions raised by Peter Keane of Bronx, New York concerning some general concepts of terrarium set up and larval frog care. We will attempt to address his questions here.

The first question was: "Which matters more, tank height or substrate surface area, when constructing a set up for dendrobatids"? In answer to that: Surface area is a very important consideration, however, it is not simply the surface area of the substrate that determines the total living space available to the terrarium's occupants. In general, set up the largest tank that your pocket book and your available space will allow. Also, keep the population density as low as possible. Now Peter, since you live in the Bronx, you have but to look across the river to Manhattan to see how one solves the problem of increasing total available space with a limited substrate - you build up! A high tank will allow for the construction of several platforms at various heights. I use thick slabs of tree bark glued to the glass with struts to support the free edges. For example in a tank that is sufficiently high you might glue a rectangular slab of bark, with a strut at each free corner, to the middle of the back glass at a height of four or five inches. Then you can glue additional slabs into each of the back corners at different heights, the struts extending

from their free edges down to the corners of your first platform. Not only will the frogs enjoy the three elevated platforms, but the space under the center rectangular slab will prove to be a favorite hiding spot for your frogs. I suggest that you spread a little sphagnum moss on each platform and put some plants on them, also a "honeymoon hut" on each bark slab will be a useful addition.

The next question was: "Can different species of dendrobatids be mixed in a community tank"? Gail Harris of Oviedo, Florida responded to this question. "In general, I do not think that mixing species in a community tank is a good idea if it can be avoided. I personally had a bad experience mixing two Costa Rican species, *Dendrobates auratus* and *Dendrobates pumilio*. I had seen the two species living together in the same Cacao grove and had that it would be alright to house them together in captivity. The frogs were kept in a well planted 24" x 48" x 12" high breeder fish tank with plenty of hiding places. After losing several of the *D. pumilio*, I removed the survivors and only then did the *D. auratus* begin laying eggs. The surviving *D. pumilio* were isolated in a smaller tank and thereafter did very well. The following year I attempted again, with new specimens of *D. pumilio* and this time the *D. auratus* began failing. I believe that the trouble was

due, in part, to territorial incompatibility and parasite problems. It is known that wild herptofauna are commonly (and most probably) infested with various parasites. In most cases these do not cause actual disease unless the frogs are subjected to stress. The introduction of animals of a different species, and also animals of the same species but from different populations can not only induce stress but may also result in transmission of parasitic organisms. The new parasites and the additional stress will often tip the balance in favor of the parasites. Captive born, presumably parasite free, frogs of a similar size might have a greater chance of success in a community tank; however there are still some factors that must be taken into consideration. Some species are more territorial than others; for example, *D. histrionicus* males are quite territorial. If you hope to breed this species it is best to keep them in a tank that does not house any other species. One factor that is very important is how you add frogs to a community tank. If you have a well established tank that contains one or more species, adding a newcomer could very well result in the death of the newcomer and/or some of the other frogs. If you have a tank in which some frogs have been breeding, adding a newcomer will most likely shut down any breeding activity. It is always stressful to add a new frog to a system where frogs have had time to establish individual territories; it is stressful not only for the newcomer, but for all the frogs. For several years I have housed

2:2 *D. leucomelas* and 1:1 *P. bicolor* (frogs purchased and terrariums set up at the same time) in adjoining tanks and even now the males can often be seen calling at each other through the glass; although I have raised many young from both. If you want to have a community tank it is best to set up the tank fresh, plant it and allow a little time for the tank to mature without any frogs. Decide which frogs you would like to house in the community tank and when you think the tank is ready, add them all at once. This way they can establish territories without any one individual having a preset advantage".

The last question was: "Could I use distilled water rather than tap water for misting the terrarium and for rearing the eggs and/or tadpoles"? I would like to break that question up into its two parts. For misting the terrarium you could use distilled water, the only advantage is that there would be less mineral deposition on the glass and tank furnishings. As far as the health of the plants and/or frogs is concerned, I think it makes little difference. I have never attempted to use distilled water for eggs or tadpoles so I cannot speak from experience but there are some theoretical disadvantages. In a solution, there is a tendency toward equilibration of the concentrations of the various solutes. The concentrations of the dissolved solutes in the blood and tissues of aquatic organisms is rarely the same as in the surrounding water. In fresh water there is a natural osmotic pull of free water into the organism; in order to survive they

have evolved mechanisms for excreting free water. The opposite problem exists in salt water; the high osmotic pull of the concentrated sea water tends to dehydrate organisms, to cope with this they have water salvage and salt excretion mechanisms. The higher the concentration gradient that exists between the blood and tissues of an organism and its surrounding aquatic environment, the greater the stress on these compensatory homeostatic mechanisms. Placing a frog egg in distilled water might result in that egg distending with water until it bursts; This is only speculation; I have never been tempted to try it! I am sure that the rain water that accumulates in leaf axils and other natural tadpole rearing sites does not have the same solute profile as typical city tap water but it is by no means distilled! I would also caution against the use of "softened" water because of its relatively high sodium concentration.

In conclusion; I would suggest to you Peter, that you stick with aged city tap water. Thanks very much for submitting these questions.

Chris Palmer of Zeeland, Michigan submits the following questions for the next "Breeders Forum": 1) How do people heat their tanks in lieu of heating the entire room? 2) Is there any way to mist the tanks, other than by hand, say with a small pump and sprayhead - how would one set this up? 3) Could a quart jar and airstone be used to keep humidity high? 4) How does one stimulate calling and breeding activity?

Another member, James Bondurant of San Francisco, submits the following questions for the next "Breeders Forum": The article on *P. terribilis* (Vol. I, # 1) indicated tank dimensions of 20" x 20" x 16" for a group of two males and three or four females. Is this also appropriate for *D. leucomelas* and *D. histrionicus*? What is the optimum population density and tank dimensions for these species? What would be an optimum population density, for display purposes, in a 75 gal tank?

Editors note: When submitting answers to these questions, write your answers just as if you were writing them in a letter to the individual who submitted the question. In the case where more than one person sends in an answer, I may consolidate the various answers to save space and eliminate redundancy.

Those readers wishing to learn more about the quinquennial complex are advised to obtain copies of the following important works for their personal libraries:

A Revision of the Poison-Arrow Frogs of the Genus *Dendrobates* Wagler, by Phillip Silverstone, Science Bulletin #21, June 30th, 1975. May be ordered from the Natural History Museum of Los Angeles County; Editor Museum Publications, 900 Exposition Boulevard, Los Angeles, California, U.S.A. 90007.
Cost = \$4.00 plus postage.

Spotted Poison Frogs: Descriptions of Three New *Dendrobates* from Western Amazonia, and Resurrection of a Lost Species from "Chiriqui", by Charles W. Myers., American Museum Novitates # 2721, pp. 1-23. May be ordered from The American Museum of Natural History, Central Park West at 79th Street, New York, New York, U.S.A., 10024.
Cost = \$ 2.00 plus postage.

The *Dendrobates quinquevittatus* Group - a Short Survey

Stephan Lotters

Bonn, West Germany

Abstract:

Die *Dendrobates quinquevittatus* - Gruppe wird vorgestellt, wobei auf die gültige Taxonomie eingegangen wird. Im zweiten Teil werden die Arten *Dendrobates captivus*, *fantasticus*, *imitator*, *mysteriosus*, *quinquevittatus*, *reticulatus* und *vanzolini* im einzelnen vorgestellt.

The *Dendrobates quinquevittatus* group is comprised of, at this time, seven species: *Dendrobates captivus*, *fantasticus*, *imitator*, *quinquevittatus*, *reticulatus*, *mysteriosus* and *vanzolini*.

Dendrobates quinquevittatus was discovered in 1864 by Steindachner. Silverstone enumerated it in his revision (1975), and gave the first scientific standards satisfying definition, diagnosis and description.

It is now felt that he was in error in classifying *Dendrobates fantasticus*, *reticulatus* (both described by Boulenger, 1883), *captivus* and *vanzolini* (both described by Myers, 1982, although discovered long prior to this) as variations of *Dendrobates quinquevittatus*.

Myers treated the *quinquevittatus* complex as a group of its own, independent of the *D. minutus* group, in which Silverstone had filed *D. quinquevittatus* in 1975. He also added another new species, *Dendrobates mysteriosus*, into this group.

In addition, another new species, described in 1986 belongs in the *quinquevittatus* group; This frog was first described by Schulte. In a personal communication, Mr. Schulte has informed me that another species belonging to this group will be described by him in the near future.

Because of these new developments, I attempted to offer a redefinition of *D. quinquevittatus* (1988).

The following is a short general description of each of the species of the newly redefined *Dendrobates quinquevittatus* group:



- D. captivus* – ▲
D. fantasticus – ■
D. imitator – ▼
D. mysteriosus – ○
D. quinquevittatus – /////
D. reticulatus – ●
D. vanzolini – ◆

Figure 1. Distribution map of the dendrobatid frogs of the quinquevittatus-group.
 Verbreitungskarte der Dendrobates-Arten aus der quinquevittatus-Gruppe.

Dendrobates captivus Myers, 1982:

Snout-vent length: 16.0 mm (SVL), brown with light spots (usually red or yellow) on
 dorsum situated so as to give the illusion of dorsolateral stripes. This frog
 has the distinctly reticulated limbs so characteristic of other members of the
 genus. This frog was first discovered by Bassler in 1924.

Dendrobates fantasticus Boulenger, 1883:

Snout-vent length: 17.0 - 21.5 mm (SVL), black with yellowish white marbling; head
 orange, with or without black spots. Distinctly reticulated limbs.

Dendrobates imitator Schulte, 1986:

Snout-vent length: 18.4 mm (SVL), green, blue, yellow or orange with black spots or
 red; limbs and ventral surface with reticulation in the same color.

Dendrobates mysteriosus Myers, 1982:

Appearance: 17.6 mm (SVL); dark with light spots (color in life unknown - this species is known only from a single preserved museum specimen collected by Bassler from the upper drainage of the Rio Marañon, Peru in 1929.

Dendrobates reticulatus Boulenger, 1883:

Appearance: 13.7 - 16.6 mm (SVL), blue-green, or violet with black spots; head and anterior dorsum uniform red or orange, distinctly reticulated limbs.

Dendrobates quinquevittatus Steindachner, 1864:

Appearance: 14.5 - 21.5 mm (SVL), black with five red, gold, yellow, orange or green longitudinal stripes - sometimes interconnected in gross reticulations; ventral surface and limbs orange, or yellow with distinctive fine reticulation.

Dendrobates vanzolini Myers, 1982:

Appearance: 16.0 - 19.0 mm (SVL), black or brown with yellow, or gold spots; limbs with blue-grey, or light grey reticulation, ventral surface with bluish white spots.

Literature:

Boulenger, G.A. (1883): On a Collection of frogs from Yurimaguas, Huallaga River, Northern Peru. - Proc. Zool. Soc., London, 1883:635-638.

Lotters, S. (1988): Redefinition von *Dendrobates quinquevittatus* (Steindachner, 1864). - Salamandra, Frankfurt/M., 24(1):72-74.

Myers, C.W. (1982): Spotted Poison Frogs: Description of Three New *Dendrobates* from Western Amazonia and Resurrection of a Lost Species from Chiriqui. - Am. Mus. Novit., New York; 2727:1-25.

Schulte, R. (1986): Eine neue *Dendrobates*-Art aus Ostperu (Amphibia: Salientia: Dendrobatidae). - Sauria, Berlin-W., 8:209-218.

Silverstone, P.A. (1975): A Revision of the Poison-Arrow Frogs of the Genus *Dendrobates* Wagler. - Nat. Hist. Mus. Los Angeles Co. Sci. Bull., 27:1-55.

Steindachner, F. (1864): Batrachologische Mitteilungen. - Verh. Zool. Bot. Ges. Wien, 14:239-288.

Acknowledgement: Special thanks to the N.D.M. News Team for support.

Field Collection Notes

Amazonas, Brazil

Date: September 7th, 1987; Collection trip began 0730 - ended 1330

Location: Vicinity of Benjamin Constant, Amazonas, Brazil.

Near the Peru, Colombia, Brazil border, on the Rio Javari.

Habitat: Lowland forest, secondary growth.

Weather: HOT! About 100 degrees F, Humidity 90%+

Species encountered: *Dendrobates quinquevittatus*, *Dendrobates pictus*, *Dendrobates trivittatus*, *Colostethus* species.

Species collected: *Dendrobates quinquevittatus* 0:0:2, *Dendrobates pictus* 0:0:1.

Narrative:

This collection trip began from the town of Benjamin Constant, on the Rio Javari. Our host, a mission pilot named Tom Piece, arranged for one of his workers, a man named Pedro, to take us out into the Matoo Grande (great jungle). At Tom's suggestion, I paid Pedro 160 Cruzados (about \$2.83) to be our guide for the day; this is slightly more than he would have earned for a days work working for Tom. This was my first experience with the jungle. Tom's son Philip went along as interpreter.

We left Tom's house about 0730, and already it was in the 90's and very humid. We walked about a mile along a dirt road, then through cleared fields and scrubby tertiary growth before coming onto the main trail leading into good solid secondary forest. Once into the jungle, I was surprised to see how dark it actually was despite the fact that it was a bright sunny day. It was too dark to take pictures without a flash (200 ASI film). I decided that I would no longer concern myself with the issue of how much light to have over my terrariums at home. Although the trail looked well used, we did not encounter any other people on it the entire day. For the most part the leaf litter was quite dry except in low areas along stream beds. September is the end of the dry season in northwestern Brazil. It frequently rains in the late afternoon but the ground dries quickly. Despite the dry conditions, frogs were plentiful both on and near the main trail. There were vast numbers of a very tiny frog that I could not identify (not dendrobatid) which were a uniform tan color with somewhat of an arrowhead shape. It was not my intention to collect frogs on this outing because I planned to stay in Brazil for another month and I knew that I would not be able to keep them alive that long.

We walked slowly along the path searching the leaf litter in an area about thirty five yards to either side of it. There were no collections of standing water in any of the litter plants except in bromeliads, which for the most part were too high up to reach. During my first attempt to find out the contents of a bromeliad I succeeded in producing a most

distressing shower of ants that came raining down on us and sent us all running for cover. I found one very large bromeliad attached to a tree about fifteen feet off the ground. During the attempt to see what it harbored it became dislodged and fell to the ground. Within this plant there was one frog of the genus *colosthesis* (specie ?) and one legless tadpole. The frog was released on the ground and the tadpole released into a nearby stream for the lack of a better idea of what to do with it.

While walking along on the trail I noticed an extremely tiny black frog which I first mistook for a cricket. Upon capture it was obviously a dendrobatid. The dorsum was black and there were two yellowish white dorsolateral stripes which extended down to meet a similarly colored spot on the upper thigh, positioned so that it was only visible with the legs extended. No calf spot was present and the lateral stripes became indistinct as they approached the head. As such, a species identification was impossible in this very juvenile frog; however I speculated that I had captured either *D. pictus* or *D. femoralis*. The issue was quickly resolved when several additional specimens were captured, including several adults. The adults were a uniform black dorsally with finely granular skin. The dorsum of the legs were brown and of a texture entirely different from the skin of the dorsum; it resembled fine tree bark. There were two bright yellow dorsolateral stripes extending up over the top of the eyes to meet on the snout. Slightly below these stripes were another set of stripes which were not quite as bright yellow, and in some specimens were white. These originated in the axillae and extended forward across the upper lip but did not come together. There was a bright yellow calf spot and also a similar spot in the flash area of the thigh. The ventral skin was bluish white, marbled on a black background. The first and second digits of the front feet were of a roughly equal length, i.e. *Dendrobates pictus*.

We spent approximately four hours in the jungle before starting back. In as much as this was my first experience with the Amazon jungle, I was awe struck. I was mainly interested in dendrobatid frogs so I did not catalog all the other herps I encountered but I can assure you there was no shortage of them. I saw frogs that I had never seen before, even in photographs. One specimen sticks in my memory particularly. It was the most incredible leaf mimic I have ever seen. If it had not moved while I was looking at it, I never would have seen it. I think this was a species of the genus *Hemiphractus*, but I would not want to be quoted on it. There were skinks, too numerous to count, and I captured an extraordinarily beautiful iguanid lizard (*Ophryoesoides aculeatus*) that is a remarkable leaf mimic. As we walked down the path, numerous little lizards scooted across in front of us, so swiftly that they were only rarely actually seen. On one such occasion, the movement stopped abruptly in the leaves at the side of the path.

I walked over and knelt down to look. I knew that something had run into the leaves and still lay there. I stared and stared, without seeing a thing; then suddenly the image of a little lizard began to materialize in my mind. I had been looking right at it, from only about twelve inches away. Once I recognized it, the lizard became the most obvious thing present, after all it was right in front of my nose! Even though my eyes had been seeing it, my brain had no frame of reference so I did not recognize it. It is truly amazing how well leaf mimicry works. This little lizard knew that its best defense was to remain absolutely motionless, which is exactly what it did even while I stretched forth my hand to pick it up. I can honestly say that was one of the most beautiful animals that I have ever seen, and I will remember this lesson in the art of camouflage for a very long time!

While walking along the trail, I caught a fleeting glimpse of a brilliantly colored frog making a hasty getaway. Try as I might, I could not catch it. I am sure that it was *Dendrobates trivittatus*. The background color was a dark brownish black and there were two broad metallic, "wet paint", green dorsolateral stripes running the length of the body. I saw only one specimen like this.

I was having such a great time that I had not noticed how hot I was, but after about four hours in the jungle I began to feel somewhat ill. Even though I was sorely disappointed, we had yet to see a single specimen of the frog that I had come out to find, (*Dendrobates quinquevittatus*), I thought it best to head back. We returned on the same trail we had walked out on, and as we walked along I began to feel worse and worse. I had a terrible headache and I knew that I was badly dehydrated, even though we had brought along plenty of water. Also, I began to get cramps in my calf muscles. By the time we got half way back, I was sick!! We were no longer looking for frogs at all, just walking back as fast as we could in the intense heat. We were walking along in single file and I was the last in line. Along the side of the trail we passed a rotting tree that had fallen down. Suddenly, just by a stroke of good luck, I happened to notice a tiny frog sitting right in plain sight on that log, actually sitting in a small patch of sunlight; **QUINQUEVITTATUS!!!!** I had no trouble recognizing this critter, I had formed a vivid mental image of it in my mind a hundred times already that day. The others had passed right by it without seeing it at all. Unlike the lizard, this little frog did not hesitate to flee from center stage, it must have seen the gleam in my eyes. As sick as I was, this one was not going to get away! It went down into the leaf litter, and me right after it; and we came back up together too. I will never forget that moment, standing there smelling worse than an old gym sock, filthy dirty, absolutely soaked with sweat, holding in my hand a stunningly beautiful little living jewel of the jungle (not to

mention the biggest ---- eat'n grin ever seen on the face of a man!) My wife thinks I'm nuts - but I don't care. How often does a man get to rekindle the childlike abandon that comes with the thrill and wonderment of discovering something new and exciting and beautiful? For a moment the cares of the world seem far away.

The specimen was an adult (21 mm SVL); the dorsum was black, smooth and moist. There were three thin parallel dorsal stripes that began at the snout as a brilliant metallic orange. Just posterior to the eyes the orange abruptly changed to bright yellow. The venter was entirely yellow, snout to knees, with numerous irregular black spots in no particular pattern. The dorsum of both the front and rear legs was covered with a delicate bluish white on black, lace like, reticulation. Another specimen, slightly larger than the first, was subsequently captured. I decided to keep these two frogs, although I did not know how I would manage to keep them alive for a month before I could take them home.

We set out again to return to Tom's house and soon left the jungle trail as we got back onto the road. This was like going from the frying pan into the fire. It was about 1330 in the afternoon and the Amazon sun is a force to be reckoned with at that time of the day. Most sensible people stay indoors in the early afternoon; frog collectors are not always sensible when it comes to their obsessions. We walked about a mile in the open sun. When we finally got back, my hands and ankles were badly swollen, my legs had severe cramps, I was seriously dehydrated, I had a terrible headache, was nauseated, exhausted, nearly delirious, and worst of all - **the frogs were dead!** I was sorry that I had not released them right where I had caught them. As it turned out, I never did find another specimen of this frog despite many later searches in the same area, so the two preserved specimens are all I have to show of them. I did manage to take some photos of them as soon as we got back and they look as if they were alive so at least I was able to preserve a good record of what they looked like. The beauty of these animals lingers only as a faint memory in preservative. It took me the rest of the day and night to get over my heat prostration, sleeping in an air conditioned room, but it was well worth it!!

Dale Bertram
Santo Antonio do Ica
Amazonas, Brazil
October 12th, 1987

CONSTITUTION OF THE INTERNATIONAL SOCIETY FOR THE STUDY OF DENDROBATID FROGS

Article I - Name

Section 1. The name of this society shall be the International Society for the Study of Dendrobatid Frogs, hereafter known as the "Society".

Article II - Purpose

Section 1. The purpose of the Society shall be to further the study of Dendrobatid frogs, to promote interest, to exchange ideas, to distribute information and encourage captive breeding. The ISSD shall be a non-profit, educational organization and as such, it is the intent that no member shall receive assets of the Society or any remuneration for their part in the normal operation of the Society.

Article III - Bylaws

The Society shall establish bylaws concerning the organization and procedures to be followed in the governing of its activities.

Article IV - Distribution on Dissolution

Section 1. Upon dissolution of the Society, the Board of Directors shall distribute the assets and accrued to one or more organizations as determined by the Board.

Article V - General Prohibitions

Notwithstanding any provisions of this Constitution or the Bylaws which might be susceptible to a contrary interpretation:

1. the Society shall be organized and operated exclusively for scientific, conservational and educational purposes.
2. no part of the net earnings of the society shall or may under any circumstance inure to the benefit of any private shareholder or individual;
3. the Society shall not:
 - a. lend any part of its income or corpus, without the receipt of adequate security

and a reasonable rate of interest;

b. pay any compensation, in excess of a reasonable allowance for salaries or any other compensation for personal services actually rendered.

c. make any part of its services available on a preferential basis;

d. make any purchase of securities or any other property for more than adequate consideration in money or money's worth from;

e. sell any securities or other property for less than adequate consideration in money or money's worth to; or

f. engage in any other transactions which result in a substantial diversion of its income or corpus to; any officer, member of the Board, or substantial contributor to the organization.

The prohibitions contained in this section 3, do not mean to imply that the organization may make such loans, payments or sales to or purchases from anyone else, unless such authority be given or implied by other provisions of this Constitution or Bylaws.

BYLAWS

Article I - Members

Section 1. Membership shall be open to all persons who shall make formal application to the Secretary-Treasurer and pay prescribed dues.

Section 2. The Board of Directors shall have the right to refuse any new member or to terminate the membership of an existing member for cause and without prior notice. However, a terminated person shall have the right to appeal to the Board of Directors.

Article II - The Officers

Section 1. The officers of the Society shall be of two kinds, elective and appointive.

a. The elected officers of the Society shall be President, Secretary-Treasurer, and three Directors; furthermore the three Directors shall consist of: one European, one American (either North or South America) and one Director-At-Large, each being equal in his authority and responsibilities.

b. The appointed officers shall include an Editor of the Society Newsletter.

Section 2. No one individual may hold two or more elective offices concurrently.

Section 3. The terms of office for the President and Secretary-Treasurer shall be one year; those for the Directors shall be for two years (with election to provide for staggered

terms so that no more than two Directors shall be elected in any one year).

Section 4. The duties of the elective officers shall be as follows:

a. The President shall preside at meetings of the Society and Board of Directors; be nominal head of the Society; rule on questions of procedure that may arise; require that provisions of the Constitution and Bylaws be observed; vote during Board meetings; appoint standing and ad hoc committees at his discretion.

b. The President-Elect shall fulfil the duties of the President when the later is absent, succeed the President at the termination of the latter's term, and assume the Presidency should that office become vacant during a term.

c. The Secretary-Treasurer shall maintain the records of the Society and its Board of Directors; notify the membership of pertinent business; be responsible for all correspondence of the Society; and coordinate the organization of the annual meetings; keep records and accounts of the Society including all monies received and dispersed; collect the annual dues and maintain the membership roster; be responsible for all financial reports required by the business of the Society.

d. The Directors shall serve as members of the Board.

e. The immediate past President shall serve as a member of the Board.

Section 5. All records and implements of office shall be turned over by any officer to his successor immediately subsequent to the latter's assumption of the office.

Section 6. The duties of the appointive officers shall be as follows: The Editor of the Society Newsletter shall be responsible for all phases of its production. In as much as the Newsletter is the principle mechanism for written communication to the membership, the Editor is obligated to publish all communications of the Society and its Board on first priority and to include, as space permits, other items consonant with the stated objectives of the Society. He shall report to the Board; to whom he is responsible.

Article III - The Board of Directors

Section 1. The Board of Directors shall consist of the President, the President-Elect, Immediate past President, Secretary-Treasurer, and the three Directors.

Section 2. The Board shall be empowered to manage the affairs of the Society and to designate all appointive officers for one year.

Section 3. The Board shall fill any vacancy occurring among officers.

Section 4. The Board shall be specifically responsible for the publication of the Society Newsletter and shall set policy as is needed to coordinate the contents so as to further the stated objectives of the Society and to insure the availability and distribution of the several items.

Article IV - Elections of Officers and Directors

Section 1. The President shall appoint three members of the Society to serve as a nominating committee, except that not more than any one member of the Board of Directors may be appointed to the committee in any one year.

Section 2. The nominating committee shall present a slate of at least two candidates for each office to be filled, except that at its discretion, the committee may offer only one candidate for the position of Secretary-Treasurer. The slate must be presented at the annual meeting, at which time nominating may be made by the membership.

Section 3. The nominating committee, or a member of the Society proposing a nominee, shall obtain the assent of the candidate to serve if elected.

Section 4. The slate of nominations shall be prepared in ballot form and circulated to the entire membership by the Secretary-Treasurer not later than the date of the publication of the first edition of the Newsletter that is published after the annual meeting. Ballots, to be valid, must be returned to the designated recipient within a three-week period of the date printed on the ballot.

Section 5. The President shall appoint an Elector from among the membership who will receive and count the ballots, and inform the Secretary-Treasurer of the results. The results of the election shall be communicated to the membership by the Secretary-Treasurer via the Newsletter.

Section 6. The Secretary-Treasurer shall inform the elected candidates of their election. Newly elected persons will take office on the first of the month following the election.

Article V - Meetings

Section 1. The Society shall hold a general meeting annually at a place and time set by the Board of Directors. Not eighteen months shall elapse between meetings.

Section 2. The membership shall be informed in writing of the place and time of the general meeting not later than two months prior to the opening of the meeting.

Section 3. One third of the voting membership present shall constitute a quorum of the Society at any meeting.

Section 4. Special meetings may be called by vote of a majority of the Board of Directors, or on petition of a quorum of the membership. The place and time of such special meetings must be announced to the membership in writing at least two weeks prior to the meeting.

Section 5. All meetings shall be conducted under Robert's Rules of Order.

Article VI - Meetings of the Board of Directors

Section 1. The Board of Directors shall meet at least once a year on the occasion of the general meeting of the Society.

Section 2. Any meeting of the Board of Directors shall be open to attendance by interested members of the Society unless the Board moves to Executive Session.

Section 3. A simple majority of the Board of Directors shall constitute a quorum.

Section 4. A majority of those present and voting shall be necessary to pass any motion.

Section 5. The meeting shall be conducted according to Robert's Rules of Order.

Section 6. Special meetings of the Board of Directors may be called by the President or a majority of the Board.

Article VII - Dues

Section 1. The Board of Directors shall be authorized to establish such dues as are compatible with the financial status of the Society.

Section 2. A member in arrears for payment of dues for a period of two months after conclusion of the current membership year shall be dropped from the role.

Article VIII - Fiscal Year

Section 1. The fiscal year of the Society shall embrace the period from 1 January of any year through 31 December of the same year.

Article IX - Amendment of Bylaws

Section 1. Amendments may be proposed by the Board of Directors or by petition to the Secretary-Treasurer by five or more members of the Society.

Section 2. Proposed amendments must be submitted in writing to the Secretary-Treasurer at least three months before the meeting at which they will be discussed.

Section 3. Such amendments shall be submitted in writing by the Secretary-Treasurer to the general membership at least two months prior to the meeting at which they are to be discussed.

Section 4. By the time of the publication of the next newsletter subsequent to the meeting, the Secretary Treasurer shall cause to be distributed, a ballot on amendments to the entire membership. To be valid the marked ballots shall be returned to the Secretary-Treasurer within a three week period of the date of the ballot.

Section 5. To be approved, an amendment must receive a positive vote, on two-thirds of returned ballots.

Section 6. Any adopted amendment shall become an integral part of the Bylaws and the Secretary-Treasurer shall be instructed to add them to copies of the Bylaws and to distribute the amended Bylaws to the members of the Board of Directors and other interested members of the Society. The Secretary-Treasurer may at his discretion cause notification of any amendments to be published, in the Newsletter, for the benefit of the general membership.

CONSTITUTION AND BYLAWS COMMITTEE:

Ed Tunstall, 2320 W. Palomino Dr., Chandler, Arizona, U.S.A., 85224

William Perreira, P.O. Box 61547, Honolulu, Hawaii, U.S.A., 96839

Note of Special Interest:

I, as editor of the **ISSD** newsletter, have been asked by the editors of **The Vivarium** to write a special feature article for publication in a future edition. This is a very good opportunity to promote the **ISSD** in this important new American magazine. **The Vivarium** is the official publication of the **American Federation of Herpetoculturists**, and as such, has a very widespread distribution within the American herpetological community. The magazine offers a high quality color photo format.

The subject of this paper will be the "quinquevittatus complex". This paper can only be successful if it is accompanied by some high quality color photographs of those species that make up this interesting group of frogs. Therefore, I am requesting that **ISSD** members who have photographs that might be useful for this project please send them to me. Submission of these photos gives **The Vivarium** one-time publication rights and does not in any way restrict the rights of the photographer(s) with respect to future publications of these photos in any other manner. Proper credit will be afforded the photographer(s) in the paper. Any materials sent to me (color prints/negatives/slides and B&W prints/negatives/slides) will be returned promptly when I am done with them. Your cooperation in this manner will be a service to **ISSD** and will be greatly appreciated by me personally.

Respectfully submitted; Dale Bertram

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Dr. Silverstone requests **NO**
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collection of, or exportation
from Colombia of, frogs.

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Classified ads:

Wanted: Adult female *D. leucomelas* (CB preferred) - will exchange CB male (adult - calling) or pay cash. Needed to compliment colony of three calling males. Especially interested in obtaining CB *D. azureus* and most other species. Contact Byron & Phyllis Williams, 19004 101st Pl NE., Bothell, Washington, U.S.A., tele # 206-486-0963.

Wanted: Any *Atelopus* sp., *D. histrionicus*, *D. silverstoni*, *D. lehmanni*, *D. leucomelas*, *P. terribilis*, *P. bicolor*, *D. azureus*, *D. trivittatus*. Anyone bringing frogs from Europe, please contact me for CITES permits. Write or call Chris Palmer, 356 N. Jefferson, Zeeland, Michigan, U.S.A., 49464, tele # 616-772-4627.

Wanted: Someone willing to translate paper(s) written in Dutch into English. I can assist in fine tuning the English if necessary. Also; Someone willing to receive advance copy of newsletter papers, read them, and write a brief abstract in Dutch and/or German, to be returned to me PROMPTLY. Contact newsletter editor - Dale Bertram, One Virginia Terrace, Madison, Wisconsin, U.S.A., 53705, tele # 608-233-1083.

Trade: My captive bred tailed amphibians for you amphibians, reptiles, etc., Contact: Scott Mock, 1475 Funston Ave., San Francisco, California, U.S.A., 94122, tele # 415-759-6814.

Unusual offering!! A rare opportunity to acquire *Dendrobates azureus* in the U.S. (wild caught adults) has presented itself. The importer needs a minimum order and a list is now being compiled. If you have been waiting for the chance to obtain these rare frogs NOW is the time to act. Contact Dale Bertram at 608-233-1083.

Wanted: Breeding loan of female *P. bicolor* needed, I have two males and would like to obtain female(s) either on loan or will purchase. Contact: Ann Jesup, 183 Fox Den Road, Bristol, Connecticut, U.S.A., 06010, tele # 203-583-1732.